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The impact of natural science contextual teaching through project method to students' achievement in MTsN Miri Sragen

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Abstract. This study aims to describe the science learning skills among students' who follow contextual learning through project method with experiment method. The population of this research is the students' of class VII MTS Negeri Miri Kab. Sragen on the teaching period of 2016/2017. Cluster random sampling technique is used as sample. This research was designed using contextual teaching through project method as an independent variable. The results of this Improvement show that there is a difference in the achievement of students' learning skill that follows contextual learning through the project method with the experimental method with F_{obs} = 8,83 and significant number 4,04 (p <0,05). Based on these findings contextual learning through the project is one of the learning methods that provide a positive influence on improving the achievement of science learning skills. This ain increase, because CTL is can help students' understand the material by relating the problems that exist. Project methods are used by students' in solving problems.

Keyword: pembelajaran kontekstual, metode proyek

1. Introduction

The success of education is a learning achievement. Gaining learning is not easy, many factors that influence it are internal factors (from within students) and external factors (from outside the students). The process of learning science is characterized by the changes of individuals characterizes by the process of learning science, both in the form of attitudes and behaviors, knowledge, mindset, and the concept of values adopted. People who have good abstract thinking skills can easily understand abstract concepts well [1]. Students to thinkes show a positive impact on the development of their education [2].

The development of their education will be achievable if teachers can develop a learning process that requires active student involvement. Teachers should understand the characteristics of the learning model used before applying it to classroom learning [3]. CTL model [4] are some of the main components in contextual learning as follows: make meaningful connections, carry out meaningful activities, self-regulated learning,

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cooperate, critical and creative thinking, nurture or maintain students private, achieve high standards, use Authentic assessment. Project method [5] means a plan, a problem, or a difficulty and a form of teaching where students manage themselves. The researcher will try to know the influence of the project method on the student's learning achievement, with the formulation of the problem as follows: is there any difference in learning achievement of science skill, students who contextual learning with project method and experimental method.

2. Method

The method of research conducted by the researcher is an experimental with 1x2 factorial design, where the learning method as an independent variable. The population in this study were all students' of MTs Negeri Miri on the teaching period of 2016/2017, and the target of the research is the students of class VII in 2016/2017 period. To determine whether or not the equivalence of the sample between the experimental group and the control group was conducted the equality test using the data obtained from the previous documentation method. The test statistic used is a t-test based on the average daily content daily repetition. In conclusion, the experimental group with the control group has the same relative ability. The research instrument consisted of IPA achievement test. Before it used in the research then it needs to be tested validation and realibility test. Testing between subjects conducted on significant numbers of F_{obs} with numbers greater that F_t so that H_0 is rejected which means there are differences in dependent variables between groups.

3. Result and Discussion

In the first step, we use learning by project method and experiment. In the second step, the effects of the project method and the experiment are discussed. The results of this study showed that students who are given learning by project method better result of learning achievement on substance characteristic material. The results of the analysis showed the achievement instrument is effective to use with the alpha reliability coefficient was found 0.73. The instrument consists of 20 questions with various questions and reasoning. Some general findings of characteristics understanding learned from research are:

3.1. Description of student conception of characteristic material

3.1.1. Student conception of Physical changes

Figure 3.1 Menguap

Figure 3.2 mengembun

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Figure 3.3 membeku

Figure 3.4 mencair

Figure 3.5 Menyublim

Figure 3.6 melarut

Figure 3.7 perubahan bentuk

3.1.2. Student conception of Chemical changes

Figure 3.8 Terbentuk endapan

Figure 3.9 perubahan warna

Figure 3.10 perubahan suhu

Figure 3.11 Terbentuk zat baru

Figure 3.12 perubahan unsur zat penyusun

Figure 3.13 http://www.youtube.com/watch?v=xPDIR-HyEic

Physical properties include form, color, odor, hardness, boiling point and melting point, particle size carrying capacity, and density. Ice that melts both in the form of ice and in the form of liquid both remain water, namely H_2O. Chemical reactions are unique, in some specific chemical reactions can form a gas. An example of a

precipitating reaction is that between lead (Nb $(NO_3)_2$) and sodium iodide (NaI) leads to a yellow lead precipitate.

3.2. Distribution of learning skill frequencies by experimental method

The greatest frequency of skill achievement values using contextual learning with the experimental method is at the interval 70-75, meaning that students who score between 70-75 is the most with the number of 8 students'. At intervals of 52-57 there are no students' or vacancies and at intervals of 76-81 there are also not students' or vacancies on the scores of skill achievement.

3.3. Results of hypothesis testing

Based on the results of the data analysis, there is a significant difference in students' learning achievement between groups who follow the project method with the experimental method, with $F_{obs} = 8.83$, $F_{\alpha} = 4.04$, $F_{obs} > F_{\alpha}$. Contextual learning can help students' understand the relationship between concepts, the relationship between facts and principles that exist in the lesson. Teachers can tie the attention of students' during the lesson and help them recall the knowledge and skills learned. The average score of achievement skills students' who were given contextual learning with the project method amounted to 78.22 while score of student achievement skills that were given contextual learning using the experimental method of 68.31. Therefore project methods can develop and train thinking skills and develop students' intellectual potential. Such as research Adnyawati (2011), through project, students are motivated to be more active in learning and to develop their creativity, while teacher only act as facilitator and evaluator for the project result

Table 3.1 Average Achievement of Skill of Project Method and Experimental Method

Variabel	**Rata-rata**	**SD**	**Interval kepercayaan 95%**	
			Minimum	Maksimum
Metode Proyek	78,22	2,24	73,70	82,73
Metode Eksperimen	68,31	2,47	63,32	73,29

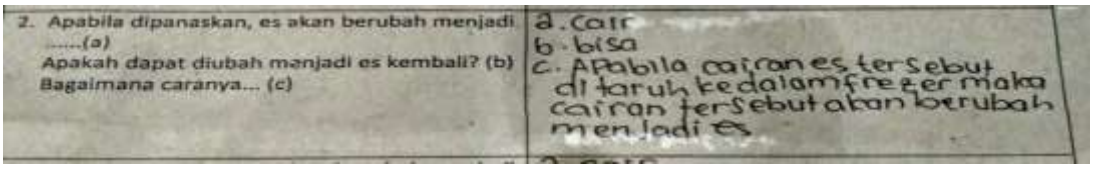

Figure 3.14 sample student answers with experimental methods

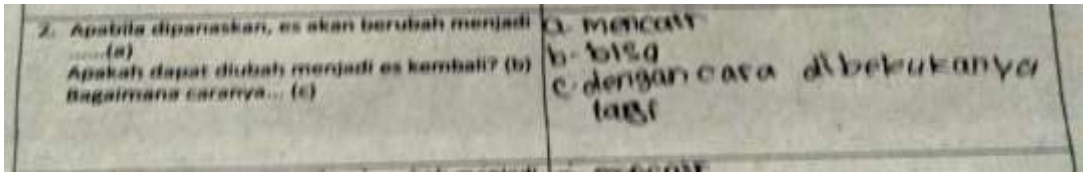

Figure 3.15 sample student answers with project method

The question its measure students to analyze and draw conclusion. In figure 1. Students have not been able to analyze and draw conclusions correctly, but in figure 2. students can analyze and plan. According to Ahmadi (1977) the project method has steps: exploration, presentation, data collection, organization, recitation.

4. Conclusions

Implementation of contextual learning with project method can improve student achievement class VII MTS Negeri Miri on the teaching period of 2016/2017. There is a difference in learning achievement of skills for students who follow CTL with project method and experimental method. The average of student learning outcomes that CTL with the project of 78.22 while the average learning outcomes of students who CTL with the experimental of 68.31 thus the learning outcomes of students who get contextual learning with The project method is better than the experimental method. It is suggested to science teachers if they want to apply contextual learning model with project method need to prepare mature so that learning goes smoothly and by the stages of contextual learning.

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References

[1] Edy. P. 2015. Pembelajaran Fisika dengan Contextual teaching and Learning Menggunakan Media Animasi Flash dan Video ditinjau dari Kemampuan Berfikir Abstrak dan Kemampuan Verbal. *Jurnal Inquiri*. Vol **4**. No.**4**. 2015

[2] Tee Tze king, Jailani Y., Razali H., Yee Mei H., et. al. (2012). Thinking Skill for Secondary School Students in Malaysia. *Journal of Research, Policy & Practice of Teachers & Teacher*

[3] Abulia. R, 2016. Pengembangan Modul Fisika berbasis Sains Teknologi Masyarakat (STM). *Jurnal Inquiri*. Vol.**5**. No.**3**, 2016

[4] Elaine B. Jonhson. 2002. Contextual Teaching and Learning. California: Corwin Press. Inc.,Thousand Oaks

[5] Doppelt,Y.2003.Implementation and Assessment of Project-Based Learning in a Flexible E nvironment. *International Journal of Technology and Design Education*,**13**:255–272

[6] National Science Teaching Association. 2003. *Standart For Science Teacher Preparation*. http://www.nsta.org/pdfs/NSTAstandards2003.pdf diakses pada tanggal 22 Juni 2017

[7] Adnyawati, N.D.M.S. 2011. Pembelajaran berbasis proyek untuk meningkatkan kreativitas dan hasil belajar tentang hidangan Bali. *Jurnal Pendidikan dan Pengajaran*. **44** (1-3):52-59.

[8] Sammons, Pamela, Desmond Nuttall, and Peter Cuttance. "Differential school

Int. J. Sci. Appl. Sci.: Conf. Ser., Vol. 2 No. 1 (2017) doi: 10.20961/ijsascs.v2i1.16676

effectiveness: results from a reanalysis of the Inner London Education Authority's Junior School Project data." *British Educational Research Journal* **19.4** (1993): 381-405

[9] Gray, John, et al. "A Multi-Level Analysis of School Improvement: Changes in Schools' Performance over Time." *School Effectiveness and School Improvement* **6.2** (1995): 97-114.

[10] Gallagher, James J. "Prospective and practicing secondary school science teachers' knowledge and beliefs about the philosophy of science." *Science education* **75.1** (1991): 121-133.

[11] Pomeroy, Deborah. "Implications of teachers' beliefs about the nature of science: Comparison of the beliefs of scientists, secondary science teachers, and elementary teachers." *Science education* **77.3** (1993): 261-278.

[12] Abell, S.K. & Smith, D.C.: 1994, 'What is Science? Preservice Elementary Teachers' Conceptions of the Nature of Science', International Journal of Science Education **16** (4), 475–487.

[13] Ahmadi dan Prasetya. 1997. *Strategi Belajar Mengajar*. Bandung: Pustaka Setia